

CLAIM AMENDMENTS

Claim 1 (withdrawn).

Claim 2 (withdrawn).

Claim 3 (withdrawn).

Claim 4 (withdrawn).

Claim 5 (withdrawn).

Claim 6 (withdrawn).

Claim 7 (withdrawn).

Claim 8 (withdrawn).

Claim 9 (withdrawn).

Claim 10 (withdrawn).

Claim 11 (withdrawn).

Claim 12 (withdrawn).

Claim 13 (withdrawn).

Claim 14 (withdrawn).

Claim 15 (withdrawn).

Claim 16 (withdrawn).

Claim 17 (currently amended). The method of objectively identifying batched products comprising the steps of analyzing a batched product for the concentration of a plurality of the naturally occurring stable isotopes of said product after batching in their anthropogenically unaltered concentrations, arranging said concentrations of said isotopes into a mathematical array, formulating said mathematical array into a readable form, assembling product information,

indexing said product information and said readable form thereby forming an index, and maintaining said index and said product information.

Claim 18 (previously presented). The method of Claim 17 further comprising the step of measuring the concentration of one or more of said isotopes in a comparable substance and comparing the concentration of said one or more isotopes of said comparable substance with the concentrations of said mathematical array in readable form to identify said substance.

Claim 19 (canceled).

Claim 20 (previously amended). The method of Claim 17 wherein said concentrations of isotopes are chosen from the group of isotopic concentrations consisting of concentrations of isotopes, concentrations of isotopes and their errors, and ratios of isotope concentrations, ratios of isotope concentrations and their errors and combinations thereof.

Claim 21 (previously presented). The method of Claim 17 wherein said readable form is a machine readable form of said mathematical array, said product information is placed on a machine, said machine readable form being indexed to said product information.

Claim 22 (previously presented). The method of Claim 21 wherein said product information may be displayed by identifying said machine readable form and indexing the same to said product information.

Claim 23 (previously presented). The method of Claim 22 wherein said product information may be scrolled and/or downloaded or printed as desired.

Claim 24 (previously presented). The method of Claim 21 further comprising measuring the concentration of said plurality of isotopes in a comparable substance, arranging said comparable substance concentrations into a mathematical array, and comparing the mathematical array of said comparable substance with said mathematical array of said product.

Claim 25 (previously presented). The method of Claim 24 wherein said mathematical array includes ratios; and concentrations and said comparing step comprises comparing each of said ratios; and concentrations step by step to identify said comparable substance within the error desired.

Claim 26 (previously presented). The method of Claim 24 wherein said concentrations of isotopes are chosen from the group of isotopic concentrations consisting of concentrations of isotopes, concentrations of isotopes and their errors, and ratios of isotope concentrations, ratios of isotope concentrations and their errors and combinations thereof.

Claim 27 (previously presented). The method of Claim 24 wherein said readable form is chosen from the group of readable forms consisting of serial numbers, bar codes, and other numerical and alphabetical indicia.

Claim 28 (previously presented). The method of Claim 24 wherein said mathematical array is chosen from the group of mathematical arrays consisting of a list of a plurality of concentrations, a list of a plurality of isotopic ratios, a list of a plurality of mathematical products of isotopic concentrations, a list of a plurality of mathematical products of isotopic ratios, groups of any such lists, groups of any such mathematical products, groups of any such ratios, groups of any such concentrations, mathematical products of any such concentrations plus or minus their error added, mathematical products of any such ratios plus or minus their error added, any such concentrations, ratios, lists, groups, and mathematical products in quadrature, isotopic ratios of any such mathematical products, ratios of said concentrations plus or minus their errors added, any of such concentrations plus or minus their errors added, factor analysis of any such concentrations, ratios, lists, groups, mathematical products and any determinants and combinations thereof.

Claim 29 (currently amended). The method of Claim 24 wherein the isotopes available are any of the ~~224~~ 252 existing stable isotopes of known elements that have two or more isotopes.

Claim 30 (previously presented). The method of Claim 24 wherein said isotopes are of any of the 13 stable isotopes of the group of elements consisting of carbon, hydrogen, oxygen, nitrogen, sulfur and combinations thereof.

Claim 31 (previously presented). The method of Claim 24 wherein the error of identification is chosen by the mathematical array chosen, the number of concentrations of isotopes utilized in said array, and the portion of said array compared with the isotopic analysis of said unknown product.

Claim 32 (previously presented). The method of Claim 24 wherein the batched product from which the concentrations of isotopes are analyzed and formed into a mathematical array is chosen from the group of batched products consisting of active pharmaceutical ingredients, excipients of drug products, impurities in drug products, raw materials and drug products, combustible fuels, additives to combustible fuels, environmental and naturally occurring products, explosives and ammunition, gun powder, crude oil, petroleum distillates, hazardous waste, paper, ink, tire materials, paints and other coatings, and other synthetic materials.

Claim 33 (previously presented). The method of Claim 24 wherein said concentrations of isotopes are chosen from the group of concentrations of isotopes consisting of bulk phase analysis and specific compound analysis.

Claim 34 (previously presented). The method of Claim 33 wherein said bulk phase analysis includes off-line dual inlet isotope ratio mass spectrometry (irMS) and on-line combustion coupled with high resolution isotope ratio monitoring/mass spectrometry (irmMS).

Claim 35 (previously presented). The method of Claim 33 wherein specific compound analysis includes gas chromatography coupled with irMS (irmGCMS) and liquid chromatography coupled with irMS (irmLCMS).

Claim 36 (previously presented). The method of Claim 24 wherein said analyses includes nuclear magnetic resonance.

Claim 37 (previously presented). The method of Claim 24 wherein said readable form is a machine readable form and said product information is stored in memory on a machine together with the index, said machine readable form, index and product information being interlinked, said machine readable form once identified through the index presents stored product information in displayed form.

Claim 38 (previously presented). The method of Claim 37 wherein said product information may be scrolled through.

Claim 39 (previously presented). The method of Claim 37 wherein said product information may be printed.

Claim 40 (previously presented). The method of Claim 37 wherein said product information may be accessed through said index from said machine readable form of said mathematical array.

Claim 41 (previously presented). The method of Claim 17 wherein said mathematical array is chosen from the group of mathematical arrays consisting of a list of a plurality of concentrations, a list of a plurality of isotopic ratios, a list of a plurality of mathematical products of isotopic concentrations, a list of a plurality of mathematical products of isotopic ratios, groups of any such lists, groups of any such mathematical products, groups of any such ratios, groups of any such concentrations, mathematical products of any such concentrations plus or minus their

error added, mathematical products of any such ratios plus or minus their error added, any such concentrations, ratios, lists, groups, and mathematical products in quadrature, isotopic ratios of any such mathematical products, ratios of said concentrations plus or minus their errors added, any of such concentrations plus or minus their errors added, factor analysis of any such concentrations, ratios, lists, groups, mathematical products and any determinants and combinations thereof.

Claim 42 (withdrawn).

Claim 43 (withdrawn).

Claim 44 (withdrawn).

Claim 45 (currently amended). A method of providing an objective identification of a batched product comprising the steps of analyzing a plurality of the naturally occurring stable isotopes of said batched product after batching in their anthropogenically unaltered concentrations, deriving empirical information from said analyzing step, and arranging said empirical information into a numerical array.

Claim 46 (previously presented). The method of Claim 45 wherein said analyzing step comprises determining ratios of measured concentrations of two or more stable isotopes of said batched product.

Claim 47 (previously presented). A method of tracing an unknown composition to a known composition comprising the steps of performing the method of Claim 46 for a plurality of known compositions, indexing said numerical arrays for said known compositions in a readable form into an index linking said numerical arrays to product information for a plurality of known compositions, performing the method of Claim 46 for said unknown composition, comparing said numerical array for said unknown composition to said numerical arrays of said index,

determining whether said numerical array for said unknown composition matches any of the numerical arrays contained in said index, and matching said numerical array of said unknown composition to the numerical array of a known composition in said index thereby identifying said unknown composition or distinguishing said unknown composition from said known compositions of said index.

Claim 48 (currently amended). The method of Claim 5 45 wherein said isotopes are any of the plurality of naturally occurring stable isotopes of said composition.

Claim 49 (previously presented). The method of Claim 17 further comprising the step of increasing the composition of at least one of the plurality of naturally occurring stable isotopes of said composition, and analyzing the same as part of said analyzing step.

Claim 50 (currently amended). A method for identifying a composition comprising identifying a plurality of the naturally occurring stable isotopes of said composition, analyzing said composition for the concentrations of a plurality of the naturally occurring stable isotopes of said composition after batching in their anthropogenically unaltered concentrations, deriving empirical information from said analyzing step, arranging said empirical information into a numerical array and formulating said numerical array into a readable form.

Claim 51 (withdrawn).

Claim 52 (withdrawn).

Claim 53 (previously presented). The method of Claim 17 wherein said readable form is chosen from the group of readable forms consisting of serial numbers, bar codes, and other numerical and alphabetical indicia.

Claim 54 (currently amended). The method of Claim 17 wherein the isotopes available are any of the ~~224~~ 252 existing stable isotopes of known elements that have two or more

isotopes.

Claim 55 (withdrawn).

Claim 56 (withdrawn).

Claim 57 (withdrawn).

Claim 58 (withdrawn).

Claim 59 (withdrawn).

Claim 60 (withdrawn).

Claim 61 (withdrawn).

Claim 62 (withdrawn).

Claim 63 (withdrawn).

Claim 64 (withdrawn).

Claim 65 (withdrawn).

Claim 66 (withdrawn).

Claim 67 (withdrawn).

Claim 68 (withdrawn).

Claim 69 (withdrawn).

Claim 70 (currently amended). A method of providing an objective identification of a batched product comprising the steps of analyzing a batched product after batching for the anthropogenically unaltered concentrations of a plurality of the naturally occurring stable isotopes of said batched product, arranging said concentrations of said isotopes into a mathematical array, formulating said mathematical array into a readable form, assembling product information with regard to said batched product, indexing said product information and

said readable form to a description of said product thereby forming an index, and maintaining said index and said product information and said readable form.

Claim 71 (withdrawn).

Claim 72 (withdrawn).

Claim 73 (withdrawn).

Claim 74 (withdrawn).

Claim 75 (withdrawn).

Claim 76 (withdrawn).

Claim 77 (withdrawn).

Claim 78 (withdrawn).

Claim 79 (withdrawn).

Claim 80 (withdrawn).

Claim 81 (withdrawn).

Claim 82 (withdrawn).

Claim 83 (withdrawn).

Claim 84 (previously presented). The method of Claim 17 wherein said analyses of said analyzing steps each have a dynamic range equal to the observed range divided by the 1-sigma standard deviation.

Claim 85 (withdrawn).

Claim 86 (withdrawn).

Claim 87 (withdrawn).

Claim 88 (withdrawn).

Claim 89 (withdrawn).

Claim 90 (previously presented). The method of Claim 84 wherein the dynamic range is the range of values expected for an analysis divided by the 1-sigma standard deviation of that analysis.